Can UGITs promote liquidity management and sustainable development?

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Abstract

Purpose – This paper aims to propose a liquidity management solution for Islamic financial institutions (IFIs) that concurs with sustainable development and financial stability.

Design/methodology/approach – The study is a qualitative research. It uses the exploratory research methodology, specifically the content analysis approach, to gather primary data and identify and interpret relevant secondary data and *Sharīʿah* concepts. The purpose is to develop a liquidity management solution for IFIs. The proposal is based on the Unleveraged Green Investment Trust (UGIT) model, which is consistent with Basel III regulatory requirements. In developing the UGIT model, the exploratory research was complemented by a case study to examine the UGIT solution for the particular case of renewable energy.

Findings – The model demonstrates how financial innovation can meet both financial stability and sustainable development objectives, thereby achieving the spirit of Islamic finance. The structure further highlights the importance of regulatory and fiscal frameworks to enhance liquidity management and investor appeal for green financial instruments.

Originality/value – This study suggests a structure of UGIT to enable IFIs to meet their liquidity management needs while promoting sustainable development.

Keywords Green energy, Investment trusts, Liquidity management, *Maqāṣid al-Sharīʿah*, UGIT

Paper type Research paper

Introduction

Liquidity management is one of the critical issues faced by Islamic financial institutions (IFIs). This is because of the underlying design of the Islamic banking system as a fractional reserve banking system and the shortage of adequate instruments and markets, which exposes IFIs to liquidity risk (Hasan and Dridi, 2010; Ahmed, 2015). This challenge is

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further exacerbated with the additional requirements imposed by Basel III regulations, i.e. the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR), which altogether aim to strengthen the stability of the financial system (BIS, 2013). Innovation is therefore important in developing a diversified range of financial instruments to meet the needs of IFIs. Innovation is also required in setting up the enabling infrastructure and ecosystem to promote cost-effectiveness as well as deep and liquid secondary markets.

From the social and environmental perspective, ecological concerns including climate change require international multilateral intervention. In this regard, one of the easiest ways to introduce value to the Islamic finance industry would be for it to supplement the obvious negative screens with some positive screens that contribute to economic development congruent with Islamic principles (El-Gamal, 2006). Infrastructure funding, including renewable energy, requires considerable resource mobilization with the corresponding increase in financial sector activity.

Based on an exploratory research methodology, this paper suggests Unleveraged Green Investment Trusts (UGITs) as a model to enable IFIs to meet their liquidity management needs. It uses content analysis to gather primary data and identify and interpret relevant secondary data and *Sharīʿah* (Islamic law) concepts to develop a liquidity management solution based on the UGIT model that is consistent with Basel III regulatory requirements. The secondary sources of data include books, journal articles, industry reports, websites of some investment trusts and policy papers on the related research topic. In developing the UGIT model, the exploratory research was complemented by a case study to examine the UGIT solution for the particular case of renewable energy.

This research seeks to use the innovation inherent in infrastructure and renewable energy investment trusts to provide a solution for liquidity management for IFIs. UGITs represent a case of financial innovation that is motivated by two key factors: (i) liquidity risk that impacts financial stability, and (ii) climate change leading to serious implications on the achievement of the United Nations' sustainable development goals (SDGs). UGITs are investment trusts that manage income-generating green assets and offer regular income in the form of dividends. The income is derived from individual or pooled underlying green projects. Investment trusts have the advantage of securitizing illiquid assets, thereby deepening the investor base and providing stable and predictable income. This often ensues from government-backed sources with a yield that can benefit from inflation linkage. The research focuses on the specific case of renewable energy to assess the potential of UGITs for liquidity management. Additionally, it demonstrates that an enabling framework is a key component of the financial innovation process, with its key pillars being regulation and taxation.

The UGIT model suggests an innovative solution for liquidity management while meeting the Basel III regulatory requirements. This can be achieved through the qualification of UGIT's common equity shares as Level 2B high-quality liquid assets (HQLA), their eligibility for repo transactions with domestic central banks and the development of domestic short-term *ṣukūk* (Islamic investment certificates) with UGIT shares as underlying assets.

The paper is structured as follows: first, an overview is provided on financial innovation drivers, liquidity management challenges for IFIs and green energy financing challenges; the UGIT solution is presented next, followed by concluding remarks and policy recommendations.

Background literature

Financial innovation implies the development of new products with unique features for existing financial needs (Sekhar, 2013). Iqbal (1999) describes the process of innovation as complex and sensitive, as it necessitates multidisciplinary considerations involving a deep understanding of Islamic jurisprudence. He argues that the survival and further

development of Islamic financial markets largely depend on the nature of financial innovation introduced by market players. Financial innovation in Islamic finance must be within the *Sharīʿah* parameters and tested against the *maqāṣid al-Sharīʿah* (objectives of Islamic law), both in form and substance, where the primary objective is the realization of benefits to the people (IFSB-IRTI-IDB, 2010). In this regard, Siddiqi (2006) points out that "the overriding concern in inventing or adapting new financial instruments has been meeting the *Sharīʿah* requirements legalistically while the *maqāṣid al-Sharīʿah* have not received due attention". This is the case of social and environmental considerations that are key dimensions in *maqāṣid* theories. Chapra (2008, p. 5) argues that:

> [. . .] the richness and dynamism inherent in the teachings of the Qurʾān and the Sunnah should enable us to expand and refine the corollaries as needed to ensure that all human rights are duly honoured and that all the different human needs are adequately satisfied [. . .] the safeguarding of the *maqāṣid* does not need to be necessarily taken to imply preservation of just the status quo with respect to the realisation of the *maqāṣid*.

Although several innovations have caused disenchantment among Islamic finance customers because of the contrived product differentiation between Islamic and conventional products, shorter lags in bringing conventional innovations to the Islamic finance sector have the undeniable positive effect of improving overall efficiency in the sector (El-Gamal, 2006). This is the case of several products such as asset-backed securitization, real estate investment trusts (REITs), mutual funds and others. Similarly, the introduction of *Sharīʿah*-compliant UGITs will expand the range of liquidity management and investment instruments available to investors while meeting the ethical principles of Islamic finance. This is because environmental and social goals are integrated with the UGIT innovative model.

Liquidity management of IFIs: challenges and impact on financial stability

A diversified financial system with deep and liquid markets for financial instruments enhances financial stability. The Islamic Financial Stability Forum (IFSF) identified several challenges that expose IFIs to liquidity risk as compared with their conventional counterparts. These include the limited liquidity of the instruments used, the underdevelopment of a liquidity management infrastructure in most of the jurisdictions where Islamic financial services are offered and the rudimentary tools used for liquidity risk management (IFSB-IRTI-IDB, 2010). These challenges are further exacerbated by the reforms introduced by Basel III regulation to enhance the resilience of the banking sector. Among the key reforms, two ratios have been introduced: the LCR and the NSFR. The LCR aims to enhance the short-term resilience of banks by ensuring that they hold a sufficient stock of unencumbered HQLA to survive a 30-calendar-day liquidity stress scenario (BIS, 2013, p. 10). The LCR is calculated as outlined below:

$$\frac{\text{Stock of HQLA}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

The objective of the NSFR is to ensure that banks maintain a minimum stable funding amount in relation to the liquidity risk characteristics of their assets and off-balance sheet activities (BIS, 2014). The NSFR is calculated as outlined below:

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100\%$$

HQLA comprise assets that can be easily and immediately converted into cash at little or no loss of value (Bank for International Settlement, BIS, 2013, p. 10). The BIS (2013, pp. 13-14) highlights four fundamental characteristics of HQLA: low risk, ease and certainty of valuation, low correlation with risky assets and being listed on a developed and recognized exchange. It also cites three market-related characteristics of HQLA: active and sizable market, low volatility and flight to quality. Level 2 assets comprise Level 2A assets[1] and any Level 2B assets (described below) accepted by the banking regulator. IFIs should be able to access and hold sufficient levels of HQLA and have the capacity to raise funds in money markets to use in the event of a liquidity shortage or to fund new profitable investments (IMF, 2017). To address these challenges, the IFSF identified the development of a liquidity management infrastructure as the second building block in enhancing financial resilience and stability. The envisioned framework would offer liquidity solutions to market players (IFSB-IRTI-IDB, 2010).

As for monetary policy, the ban on *ribā* (interest) severely restricts a central bank's grip on the economy, with more restricted options than under conventional finance (Visser, 2009). Generally, central banks use interest-based tools or replicator tools in countries that have IFIs owing to the shortage of viable alternative tools. Although several instruments have been developed in many jurisdictions in an attempt to develop *Sharīʿah*-compliant money markets, a shortage of HQLA has undermined IFIs' capacity to manage their liquidity and mitigate their liquidity risk. Examples include *mushārakah* (profit and loss sharing [PLS]) certificates in Sudan, *wadiʿah*-based instruments (safekeeping) in Indonesia[2], *tawarruq*-based instruments (tripartite arrangement, also known as commodity *murābaḥah*) in Kuwait[3], Government Investment Issues in Malaysia, Islamic Certificates of Deposit in the United Arab Emirates, *ṣukūk al-salam* (forward sale certificates) and *ṣukūk al-ijārah* (lease certificates) in Bahrain. Commodity *murābaḥah* is considered the main instrument used by IFIs to manage their liquidity. However, dependence on the *murābaḥah* contract[4] has been heavily criticized for impeding research and development of other *Sharīʿah*-compliant instruments that might be securitized and would, therefore, be better placed to support the development of the Islamic capital market (Thomas *et al.*, 2005).

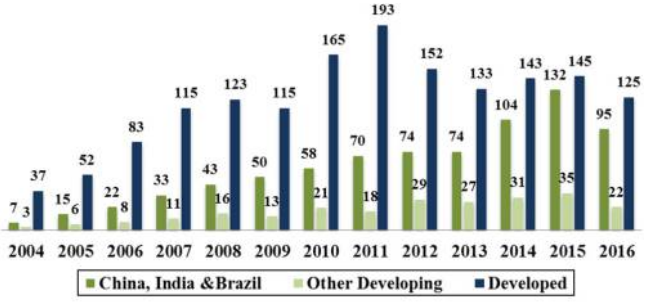
The green energy financing challenge

According to the United Nations Framework Convention on Climate Change (2018), 178 countries to date have ratified the Paris agreement (2016) on climate change. The Convention brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects. One of the key requirements of the climate agreement is energy transition to promote greater use of renewable energy. In fact, energy has a direct impact on socioeconomic development, given its crucial role in the development of sectors such as manufacturing, infrastructure, agriculture, health and education, among others. Access to clean and sustainable energy has become today a key objective that should be integrated into national development plans and international development initiatives. The International Renewable Energy Agency (IRENA) estimates the additional net investment required to implement renewable energy solutions at US$1.4tn, or about US $100bn per year on average between 2016 and 2030 (IRENA, 2016). Because funding from public and concessional sources is scarce, an engaged private sector will be needed to make significant investments in renewable energy technologies (The World Bank and Climate Investment Funds, 2015). Investment sources for renewable energy projects include development bank financing, bond issuance, commercial bank lending and investment funds[5]. Figure 1 below highlights how important the big three (China, India and Brazil) have been in investment terms in the past decade, accounting for US$94.7bn as at 2016,

whereas the "other developing" economies managed only US$21.9bn (Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance, 2017).

Utilities and project developers have traditionally provided the majority of equity in large renewable projects through their balance sheet. However, in the past five years, a large number of institutional investors have notably recognized infrastructure investments through debt and equity as a source of inflation-linked, long-term and stable cash flows (OECD, 2016). In addition, the capital and liquidity requirements of Basel III are likely to limit the amount of capital available for renewable energy financing from banks (Narbel, 2013). Institutional investors include mainly pension funds, insurance companies, asset managers, private equity firms, investment funds, YieldCos (described below) and other listed vehicles (OECD, 2016). YieldCos are among the several yield-based investment vehicles that have been developed to raise financing for renewable energy projects. This terminology is common in the USA, where the vehicle is classified as a corporation for US federal income tax purposes (with ownership of an equity interest being the ownership of corporate stocks) (EY, 2015). Other vehicles include quoted project funds, master limited partnerships (MLPs) and infrastructure investment trusts. A YieldCo is a publicly traded corporation that, like an MLP, provides stable and growing distributions for investors from operating assets that generate a predictable stream of cash flow (EY, 2015)[6]. This structure, akin to a green infrastructure investment trust, has gained prominence for the past years as a liquid means to generate exposure to renewable energy assets. Investment trust companies are closed-end funds that are publicly traded. A recent report by the UNEP shows that in 2015, YieldCos and quoted project funds sold a record US $7bn of equity, mainly to institutional and retail investors, to acquire operating-stage renewable energy projects (Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance, 2016). Investment trust companies represent a good source for financing renewable energy projects, given the constraints faced by banks and utility companies to fund long-term projects. Their investments are usually directed to operating-stage projects, which enable financing from multilateral development banks (MDBs), utility companies and governments to be directed to early-stage development phases of projects in which institutional investors are reluctant to invest.

In the Islamic capital markets, the Islamic fund management industry is still in its infancy, representing only about 2 per cent of total Islamic finance assets (though the universe of *Sharī'ah*-compliant equities is a significantly higher portion of global equities). As at end 2017, there were 1,161 Islamic investment funds globally managing total assets of approximately US$66.7bn with approximately 88 per cent of assets under management



Source: Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance (2017)

Figure 1. Global new investment in renewable energy: split by type of economy, $bn (2004-2016)

concentrated in five jurisdictions (IFSB, 2018). The managed assets include a broad spectrum of equity (42 per cent), money market (26 per cent), commodities (14 per cent), *ṣukūk* (10 per cent) and real estate (1 per cent). Alternatives represented only 0.04 per cent, which remain small in contrast with conventional funds (IFSB, 2018). Usmani (1998) defines an Islamic investment fund as "a joint pool wherein the investors 'the subscribers of the fund' contribute their surplus money for the purpose of its investment to earn *Sharīʿah*-compliant pro-rated profits". The funds are managed on the basis of either *muḍārabah* (profit sharing) or *wakālah* (agency) contracts. Islamic investment funds are similar to socially responsible funds in that they select their placements not on the basis of profitability alone but also on non-economic criteria (Warde, 2000), a strategy which offers an embedded risk-management mechanism within the screening process. The approach is based on a two-level filtering mechanism:

(1) qualitative, which excludes non-permissible activities such as alcohol, tobacco, gambling and others; and

(2) quantitative, which applies thresholds on the level of leverage and income from *Sharīʿah*-non-compliant activities.

Innovation in the Islamic fund management segment is best exemplified in the development of *Sharīʿah*-compliant mutual funds, hedge funds and REITs (El-Gamal, 2006).

Conventional renewable energy investment trusts[7] are by nature *Sharīʿah*-compliant under the qualitative screening approach. However, from a quantitative filtering perspective, a number of their operations may not comply with *Sharīʿah* requirements. These include their financing structure such as interest-based loans, their cash placements in interest-generating instruments and the use of conventional insurance for their activities.

Proposing UGITs as a liquidity management and green energy financing solution

This research seeks to use the innovation inherent in infrastructure and renewable energy investment trusts to provide a solution for IFIs' liquidity management. Within this context, it suggests a developmentalist approach that aims to fulfil the *maqāṣid al-Sharīʿah* (objectives of Islamic law) through three key objectives: financial stability, climate change mitigation and sustainable development (see Figure 2 below). The Trust focuses on real economic activities, which have a direct impact on sustainable development. This gives investors the opportunity to invest their money in alignment with their core beliefs –

Source: Authors

Figure 2.
The UGIT triangle: a developmentalist approach to liquidity management

including promoting environmental objectives and social good – along with a good financial return on their investment.

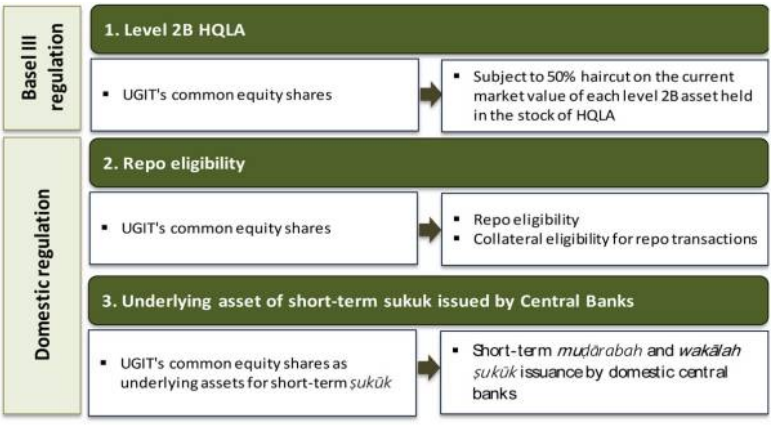
The three-layer solution for liquidity management

UGITs have the potential of providing a three-layer solution for liquidity management while meeting Basel III regulatory requirements. This is described in Figure 3 and depends largely on the prevailing regulatory environment. Domestic central banks' support is, therefore, an important milestone in achieving these objectives.

Level 2B HQLA. Investment in common equity stocks makes the investor share in the profits and losses of a firm; it is akin to PLS arrangements (Visser, 2009). Under Basel III regulation, common equity shares may be included in level 2B assets held by IFIs subject to meeting the following criteria (BIS, 2013, p. 21):

- exchange-traded and centrally cleared;
- a constituent of the major stock index in the home jurisdiction or where the liquidity risk is taken, as decided by the supervisor in the jurisdiction where the index is located;
- denominated in the domestic currency of a bank's home jurisdiction or in the currency of the jurisdiction where a bank's liquidity risk is taken; and
- traded in large, deep and active repo or cash markets characterized by a low level of concentration.

In addition, UGITs' common equity shares need to have a proven record as a reliable source of liquidity in the markets (repo or sale) even during stressed market conditions (BIS, 2013, p. 21). The research assumes that UGITs' inherent features contribute to fulfilling this objective. First, UGITs are unleveraged and their income is mainly derived from the underlying assets, which decreases their volatility as compared with leveraged investment trusts[8]. Second, UGITs benefit from local governments' sponsorship, and their underlying assets represent income-generating and high-quality operating projects. This mitigates investors' exposure to early development stage risks and therefore allows for the stability



Source: Authors

Figure 3.
UGITs' three-layer solution for liquidity management

and predictability of their cash flows. Third, the reserve fund established by the Trust mitigates late payment risk and allows for the smoothing of dividend payments. Fourth, the revenue risk is mitigated by the power purchase agreements (PPAs) between the operating companies and the clean energy distributors for the sale of the electricity generated. Finally, the eligibility of UGITs shares for repo transactions increases investor confidence and promotes open market operations.

Repo eligibility. Islamic repurchase agreements (repos) are financial instruments introduced for the purpose of enhancing liquidity in the interbank money markets (IMMs) and providing avenues for IMM participants to source their funding requirements (BNM, 2015). Repos involve the sale and repurchase of securities between a purchaser (the lender), usually the central bank, and a seller (the borrower) at a fixed price on a fixed date. The underlying securities are necessarily high-quality and liquid instruments with a value at least amounting to the provided facility. To expand the development of liquidity management instruments, central banks can include common equity shares issued by UGITs in their list of eligible securities for repo transactions.

From a *Sharīʿah* perspective, the repo is based on a *rahn* agreement whereby the borrower (the IFI) pledges UGIT shares against a liquidity facility by the facility provider (the central bank). *Rahn*, which is also termed as pledge, mortgage, pawning, collateral, charge or lien, refers to taking an asset as security against a debt, whereby the secured asset can be used to repay the debt in the case of non-fulfilment of the financial obligation (ISRA, 2016). In this case, the central bank can enjoy the prorated dividends of the pledged shares, which can be qualified as *hiba* (gift).

Eligibility as the underlying asset for short-term ṣukūk issuance. The financial development of the Muslim world entails conceptualization of risk-sharing fixed income securities (i.e. *ṣukūk*). This is quite an arduous task in contrast to conventional finance, where debt instruments are construed as using interest-bearing (*ribawī*) securities with direct or indirect support of the government. In the conventional system, liquidity management is offered via government *ribawī* facilities. This paper discusses the intricate issue of liquidity management for Islamic banks operating in a dual system as follows.

The Islamic Financial Services Board (IFSB) recommends that monetary authorities should actively use government Islamic finance instruments in market-based monetary operations of the central bank to manage liquidity in Islamic money markets in addition to supervisory guidance and incentives for effective liquidity risk (IFSB, 2008). In recent years, several initiatives based on *ṣukūk* have attempted to address liquidity management challenges for IFIs. These include (i) short-term *ṣukūk* issued by the International Islamic Liquidity Management Corporation (IILM), Central Bank of Bahrain (CBB) and Bank Negara Malaysia (BNM); (ii) *ṣukūk* trading platforms to promote secondary market trading; and (iii) *wakālah* fund based arrangements proposed by Bank of England (BOE). The last model is particularly interesting, as it allows central banks to provide a *wakālah* facility to Islamic banks whereby Islamic banks can place deposits with BOE on a term basis that can be breakable by Islamic banks at any time and for an expected profit rate, which would be set at the start of the transaction. BOE will then invest the deposits in high-quality *ṣukūk*[9]. However, the deposits represent a guaranteed claim against BOE, which gives rise to *Sharīʿah* compliance issues, as the guarantee of the *muwakkil*'s funds by the *wakīl* contravenes *Sharīʿah* principles[10].

Another option could be the issuance of short-term *ṣukūk* by central banks using a pool of shares issued by UGITs or a mixed pool comprising shares together with other tangible assets. These could qualify as short-term green *ṣukūk* as they target environmental impact projects. From a *Sharīʿah* perspective[11], a share represents an undivided share in the

capital of a corporation, just as it represents an undivided share in its assets and the rights associated with it upon conversion of the capital into tangible things, benefits, debts and so on (AAOIFI *Sharīʿah* Standard No. 21, 2015). Equity shares have been used, for example, as underlying assets in the Government of Malaysia's *wakālah ṣukūk* issued in 2016 and the IDB *wakālah ṣukūk* issued in 2009. In the Government of Malaysia *ṣukūk*, according to the Offering Memorandum, the issue price to the government was allocated to the purchase of shares of Pengurusan Aset Air Berhad (Custodian of National Water Assets) under a Share Sale and Purchase Agreement. AAOIFI, in its *Sharīʿah* Standard No. 17 (Investment Sukuk-Appendix B: Basis of the Shari'a Rulings), sets two general conditions for *ṣukūk* to be tradable:

(1) *ṣukūk* holders must have the rights and obligations of ownership of real underlying assets (whether tangible, usufructs or services), which must be capable of being owned and sold legally; and

(2) *ṣukūk* must not purely represent receivables or debt.

The UGIT shares represent *ʿayn* (real assets) and therefore allow for the tradability of the short-term *ṣukūk* issued by central banks.

The UGIT structure

The structure involves the UGIT raising cash from institutional investors through an initial public offering (IPO) of its stocks, and using the IPO proceeds to buy green assets. Typically, UGITs will invest in operational revenue-generating high-quality assets, which present several advantages:

- efficiency in the use of public and multilateral funds by directing them to early project development and preparation phases, which result in the development of a pipeline of high-quality government-backed bankable green energy projects;
- promoting investor confidence, which attracts private sector investments for projects in the execution phase;
- providing IFIs, especially banks and *takāful* companies, with high-quality liquidity management instruments, thus contributing to financial stability; and
- providing tax incentives to investors that have a direct impact on their investment appetite.

The vehicle is structured as an actively managed investment trust company with publicly quoted shares. In general, close-ended investment trusts are more attractive to investors than open-ended investment companies, as they are endowed with the advantage of owning illiquid assets. This is attributed to the process of securitization, which facilitates the transformation of illiquid assets into tradable capital market instruments (Mullineux and Murinde, 2005)[12]. Furthermore, the listing of investment trusts facilitates their continuous pricing, which enhances their liquidity.

The Trust illustrated in Figure 4 uses the subscription amounts to invest in green energy long-term income-generating assets for the purpose of leasing them. The assets' high quality is derived from the long-term lease contracts with the operating companies, which offer regular and predictable cash flows. The key parties in the UGIT structure are described below:

- *The Trust*: The UGIT invests in income-producing green assets used to generate clean energy in line with *Sharīʿah* principles. The UGIT's portfolio comprises domestic high-quality green assets.

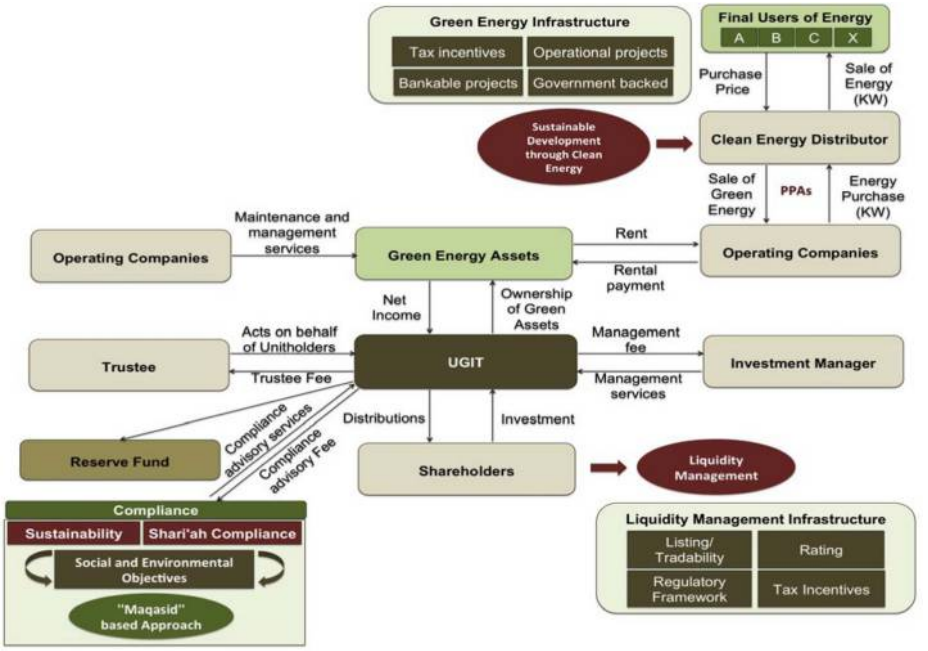


Figure 4.
The UGIT structure: enhancing liquidity management through green infrastructure

Source: Authors

- *The operating companies*: The operating companies lease the green energy assets from the UGIT. Their role is to operate the assets (including maintenance and management services) and sell the energy produced to clean energy distributors. The clean energy distributors will then sell the energy purchased to the final users.
- *The investment manager*: The Trust is managed by an investment manager (the manager), a wholly owned subsidiary of the UGIT with expertise in the green energy sector. The manager sets the strategic direction for the UGIT, manages its assets and makes recommendations to the Trustee on issues related to the asset pool under management. The manager should also ensure compliance with the guidelines as set out by the sustainability committee.
- *The sponsor*: The sponsor offers expertise to help identify and source suitable green assets for the UGIT's portfolio. The sponsor also provides a pipeline of potential green assets for future acquisitions.
- *The compliance committee*: The compliance committee is composed of *Sharīʿah* scholars and sustainability experts who can assess the ethical compliance of transactions. Based on the *maqāṣid* approach, *Sharīʿah* scholars should assess the ethico-legal compliance of the transactions based on the sustainability reports provided by the sustainability committee.
- *The reserve fund*: The reserve fund allows investors to enjoy a steady income whereby the UGIT can hold back a percentage of the income generated by the

underlying assets each year to build up a reserve to be used to smooth-out dividend payments in tougher times.

Sharīʿah considerations and underlying contracts

The activities of the Trust comply by nature with the principles of *Sharīʿah*, as they do not involve activities in illicit sectors. From a quantitative screening perspective, the Trust is *unleveraged*, unlike conventional trusts. The Trust, in its legal entity, owns the assets and collects rentals from the operating companies (lessees). The *ujrah* (rentals) represent the main source of income of the fund, which will be distributed to the shareholders in the form of dividends on a pro-rata basis. Each shareholder holds a percentage in the Trust assets, and is, thus, entitled to a pro-rata share in the Trust's income, allowing for the tradability of shares. The Trust's financing is mainly derived from the offering of shares and subsequently the cash flows generated from the underlying assets. The UGIT structure can be construed based on the *ijārah* and *wakālah* contracts.

The *ijārah* contract can be used between the investment manager and the operating companies. An *ijārah* contract incorporates a fixed-term or periodically re-fixed income stream, or rental, from the economic use of a physical underlying asset (Thomas, 2005). The Trust invests exclusively in leased assets with fixed tenure and regular income, facilitating the use of the *ijārah* structure, which enjoys global *Sharīʿah* acceptance. Usmani (1998) highlights several requirements for the acceptability of *ijārah*:

- The leased assets must have some usufruct, and the rental must be charged only from that point of time when the usufruct is handed over to the lessee.
- The leased assets must be of a nature that their *ḥalāl* (permissible) use is possible.
- The lessor must undertake all the responsibilities consequent to the ownership of the assets.
- The rental must be fixed and known to both parties at the time of entering into the contract.

The *wakālah* contract is used between the trustee as *wakīl* and the shareholders as *muwakkil*. Under the *wakālah* contract, the shareholders (certificate holders) are contributors of subscription amounts that would be used to purchase leasable assets for the purpose of leasing them to operating companies (lessees). In this case, the Trust, as *wakīl*, is entitled to a fee for its services. The trustee appoints an investment manager to manage the trust assets on its behalf[13].

Key enabling factors: the ecosystem

The key enabling factors include an innovative ecosystem to mitigate barriers that can hold back the development of UGITs and their use as an efficient liquidity management tool for IFIs.

Incentives

Incentives enhance cost effectiveness and increase demand for financial instruments. Examples include tax exemptions[14] such as tax neutrality, stamp duty exemption and reductions in withholding taxes and policy support such as green subsidies and capital grants. Subsidies, for instance, foster green innovation, stimulate demand for clean energy and facilitate the entry of new players (Nesta *et al.*, 2014).

Instruments that mitigate revenue risks

One of the key challenges in investing in green energy projects is to secure a predictable stream of revenue to reward investors. This can be achieved by the set-up of long-term contracts with energy off-takers, usually in the form of PPAs and/or feed-in tariffs (FITs). PPAs are legally binding standardized contractual agreements by which an entity, such as a single buyer or a distribution company, undertakes to purchase the power generated by an independent or affiliated small-scale renewable energy power producer under specified terms for a multi-year period (Azuela and Barroso, 2011). FITs drive market growth by providing developers long-term purchase agreements for the sale of electricity generated from renewable energy sources (Couture *et al.*, 2010).

Regulatory framework

Enabling regulatory frameworks are important to allow banks to invest in infrastructure investment trusts. A good example is India, where the Reserve Bank of India decided in April 2017 to allow banks to participate in REITs and infrastructure investment trusts within the overall ceiling of 20 per cent of their net worth permitted for direct investments in shares, convertible bonds/debentures, units of equity-oriented mutual funds and exposures to venture capital funds subject to few conditions[15]. Another good example evidencing the importance of regulatory frameworks to promote financial innovation is Malaysia. With guidelines on Islamic REITs, sustainable and responsible investing and green *ṣukūk*, the country is continuously developing its infrastructure to allow for the development of the Islamic finance industry.

High-quality asset pipeline

The Trust can only invest in viable and bankable projects that have already passed the pre-investment stage and reached financial close. Although this mitigates the early development stage risks[16], it requires the availability of a high-quality asset pipeline. In fact, the availability of a sufficient and predictable portfolio of projects is critical to attracting private sector investors, with pre-investment facilitated by MDBs in the form of project facilities (Griffith-Jones and Kollatz, 2015). Recent initiatives suggest the consolidation of global project pipelines to facilitate the private sector investment decision process[17].

Listing and green indexes

In an attempt to promote sustainable practices, several indexes tracking the clean energy sector have been developed in the past years. Among them the Nasdaq Clean Edge Green Energy Index (Trading Symbol: CELS), the FTSE Green Revenues Index, the S&P Global Clean Energy Index and others. The development of domestic green indexes promotes transparency and sustainable investment by facilitating the tracking of companies that are engaged in clean energy activities.

Tradability

A key factor to promote the effectiveness of UGITs as a liquidity management solution is their tradability. Islamic investors in general lack high-quality assets and as such tend to buy-and-hold rather than trade in assets. The Islamic securities market is insufficiently deep to allow for trading. This is also the case for *ṣukūk* investors who, in general, face a liquidity risk arising from the underdevelopment of the secondary market. Preferential regulatory treatment, transparent and well-established price discovery mechanism and a better supply of *ṣukūk* are factors that could foster the development of a vibrant, deep and liquid secondary market for *ṣukūk*. The closed-end structure facilitates the transformation of income-generating illiquid real assets into tradable capital market instruments as described earlier in the UGIT structure.

Conclusions and policy recommendations

The global mobilization to enhance financial stability, achieve the SDGs and mitigate climate change requires innovative structures and frameworks to develop new financing instruments and increase the efficiency of the existing ones. Islamic finance's inherent ethical principles and legal contracts offer different avenues for financial innovation that incorporate the *maqāṣid*.

UGITs represent a case of financial innovation, as they allow for the pooling of investment funds and their allocation to development projects in addition to facilitating liquidity management for IFIs and open market operations for central banks. This paper examines the particular case of renewable energy. However, the model can be extended to other environmental issues such as transport, water and waste management.

The exploratory research highlights two key areas for regulators' focus. First, standardized guidelines and frameworks on green and infrastructure investment trusts need to be developed by local regulators and international standard setting bodies such as the IFSB. Second, favourable regulatory frameworks are important for promoting banks' ability to invest in UGITs and the qualification of their shares as HQLA. The research can be extended in the future to investigate the employment of unleveraged REITs for the purpose of liquidity management.

Notes

1. The BIS limits level 2A assets to the following, subject to satisfying certain conditions: (i) marketable securities representing claims on or guaranteed by sovereigns, central banks, public sector entities (PSEs) or multilateral development banks and (ii) corporate debt securities (including commercial paper) and covered bonds (BIS, 2013, pp. 19-20).
2. Bank Indonesia provides a short-term facility for fund placements according to the *wadiʿah* principle for Islamic banks, in which proof of placement is held in the form of Bank Indonesia *Wadiʿah* Certificates (SWBI). A *Wadiʿah* Fund Placement may have a term of 7 days, 14 days and 28 days. Bank Indonesia may pay out a bonus for *Wadiʿah* Fund Placement at the end of the placement period (Bank Indonesia regulation number 6/7/PBI/2004, www.bi.go.id).
3. In Kuwait, banks can place excess liquidity with the central bank (CBK) both on short- and long-term basis, using *tawarruq* (reverse *murābaḥah*). *Tawarruq* with CBK can have three- and six-month tenures (www.cbk.gov.kw).
4. This is also the case for any other arrangements where the underlying goods are mainly used to replicate a deferred obligation with a mark-up, thus having the same economic effect of interest.
5. Another major source that can facilitate the financing of renewable energy projects are export credit agencies (ECAs). Their support usually takes the form of direct loans, investment insurance and guarantees. In addition, crowdfunding can also be an alternative financing source for small-size renewable energy projects, though this promising sector has come under regulatory pressure in many markets recently, restricting the amounts that may be raised and their investment allocation.
6. According to EY (2015), the classification as a corporation is important in the sense that such classification likely broadens the investor base in this yield-based vehicle to non-US investors and tax-exempt investors.
7. In the UK, for example, there are six renewable energy investment trusts launched in 2013 and 2014 that are listed on the London Stock Exchange:

- Renewables Infrastructure Group (TRIG): wind and solar energy;
- Foresight Solar Fund Limited (FSFL): solar energy;
- John Laing Environmental Assets (JLEN): wind, solar and waste management;
- Greencoat UK Wind (UKW): wind energy;
- Bluefield Solar Income Fund (BSIF): solar energy; and
- NextEnergy Solar Fund (NESF): solar energy.

8. Volatility of shares is contingent on the variability of the income of the underlying shares. The unleveraged structure of UGITs helps in lowering the variability of their income and thus their underlying share prices (Brealey, Myers and Allen, 2006). This relative price stability endows low beta to UGITs as hypothesized by Hamada (1972) and empirically confirmed by AMP Capital Investors (2010). A result of this is the increase in infrastructure funds (Orr, 2007).
9. The Fund's initial purchases of *ṣukūk* will be funded by a deposit from the Bank rather than a conventional interest-based loan.
10. Although combining agency and guarantee in one contract is prohibited, as it contravenes *Sharī'ah* principles, the AAOIFI in its Standard No. 5 on Guarantees allows the *wakīl* to provide a guarantee for the *wakālah* funds in a different capacity from that of the agent, provided that the guarantee is not stipulated in the agency contract and the agent voluntarily provides a guarantee to the *muwakkil* independently of the agency contract.
11. Legally, an ordinary share (or a common stock security) represents a portion of ownership interest in a corporation with a set of rights attached to it (voting rights, profit distribution and others). It represents a residual claim on the company's profits after satisfying its obligations such as debt, taxes and others.
12. Investment trusts trade at a discount or premium to their underlying net asset value (NAV). Academic research describes this as a puzzle (Lee, Shleifer and Thaler, 1991). When investment trusts own illiquid assets, it can be difficult to accurately price their constituent assets based on market value. One is compelled to "appraise" their illiquid assets, thereby biasing their NAV (Geltner, 1989, 1991).
13. Technically there are two layers of *wakālah*. The first one is the *wakālah* between the trustee and the shareholders, and the second one is between the trustee and the investment manager.
14. In the case of Tadau *Ṣukūk*, the first green *ṣukūk* in Malaysia, several incentives were put in place to attract green issuers. These include (i) tax deduction until year of assessment 2020 on issuance costs of SRI *ṣukūk* approved or authorised by or lodged with the Securities Commission; (ii) tax incentives for green technology activities in energy, transportation, building, waste management and supporting services activities; and (iii) financing incentives under the Green Technology Financing Scheme with total fund allocation of RM5bn until 2022.
15. www.rbi.org.in
16. An example of institutions that provide support to the early development stage of infrastructure projects is Africa50. Africa50 aims to increase the pipeline of bankable private and public–private partnership infrastructure projects in Africa through strategic investments in infrastructure projects with a development impact (https://www.africa50.com/).
17. A recent initiative by the Brisbane G20 leaders' summit in 2014 has led to the creation of the "Global Infrastructure Hub Project Pipeline", a dynamic database of future and current government infrastructure projects, allowing projects to be tracked from conception to completion (https://pipeline.gihub.org/).

References

AAOIFI Sharī'ah Standard No. 21 (2015), *Sharī'ah Standards*, Accounting and Auditing Organization for Islamic Financial Institutions, Bahrain.

Ahmed, H. (2015), "Basel III liquidity requirement ratios and Islamic banking", *Journal of Banking Regulation*, Vol. 16 No. 4, pp. 251-264.

Azuela, G.E. and Barroso, L.A. (2011), "Design and performance of policy instruments to promote the development of renewable energy: emerging experience in selected developing countries", Energy and Mining Sector Board Discussion Paper, The World Bank Group, Washington, DC, No. 22 April.

BIS (2013), *Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools*, Bank for International Settlements, Basel, available at: www.bis.org/publ/bcbs238.pdf (accessed 18 August 2017).

BIS (2014), *Basel III: The Net Stable Funding Ratio*, Bank for International Settlements, Basel, available at: www.bis.org/bcbs/publ/d295.pdf (accessed 18 August 2017).

BNM (2015), "Liquidity coverage ratio", available at: www.bnm.gov.my/guidelines/01_banking/04_prudential_stds/Liquidity_Coverage_Ratio.pdf (accessed 18 August 2017).

Brealey, R.A., Myers, S.C. and Allen, F. (2006), *Principles of Corporate Finance*, McGraw-Hill/Irwin, New York, NY.

Chapra, M.U. (2008), *The Islamic Vision of Development in Light of Maqāṣid al-Sharī'ah*, The International Institute of Islamic Thought, London.

Couture, T.D., Cory, K., Kreycik, C. and Williams, E. (2010), "A policymaker's guide to feed-in tariff policy design", Technical Report NREL/TP-6A2-44849, National Renewable Energy Laboratory (NREL, CO.

El-Gamal, M.A. (2006), *Islamic Finance: Law, Economics, and Practice*, Cambridge University Press, New York, NY.

EY (2015), "The YieldCo structure: unlocking the value in power generation assets", available at: www.ey.com/Publication/vwLUAssets/ey-yieldco-brochure/$FILE/ey-yieldco-brochure.pdf (accessed 18 August 2017).

Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance (2016), "Global trends in renewable energy investment", available at: http://fs-unep-centre.org/sites/default/files/publications/globaltrendsinrenewableenergyinvestment2016lowres_0.pdf (accessed 18 August 2017).

Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance (2017), "Global trends in renewable energy investment", available at: http://fs-unep-centre.org/sites/default/files/publications/globaltrendsinrenewableenergyinvestment2017.pdf (accessed 18 August 2017).

Geltner, D. (1989), "Bias in appraisal-based returns", *Real Estate Economics*, Vol. 17 No. 3, pp. 338-352.

Geltner, D.M. (1991), "Smoothing in appraisal-based returns", *The Journal of Real Estate Finance and Economics*, Vol. 4 No. 3, pp. 327-345.

Griffith-Jones, S. and Kollatz, M. (2015), "Infrastructure finance in the developing world: multilateral lending instruments for infrastructure financing", Working Paper, The Global Green Growth Institute, Seoul, and G-24, Washington, DC, June, available at: https://www.g24.org/wp-content/uploads/2016/05/MARGGK-WP09.pdf (accessed 18 August 2017).

Hamada, R.S. (1972), "The effect of the firm's capital structure on the systematic risk of common stocks", *The Journal of Finance*, Vol. 27 No. 2, pp. 435-452.

Hasan, M. and Dridi, J. (2010), "The effects of the global crisis on Islamic and conventional banks: a comparative study", IMF Working Paper WP/10/201, International Monetary Fund, Washington, DC.

IFSB (2008), *Technical Note on Issues in Strengthening Liquidity Management of Institutions Offering Islamic Financial Services: The Development of Islamic Money Markets*, Islamic Financial Services Board, Kuala Lumpur.

IFSB (2018), *Islamic Financial Services Industry Stability Report 2018*, Islamic Financial Services Board, Kuala Lumpur.

IFSB-IRTI-IDB (2010), "Islamic finance and global financial stability", available at: https://www.ifsb.org/docs/IFSB-IRTI-IDB2010.pdf (accessed 18 August 2017).

IMF (2017), *Ensuring Financial Stability in Countries with Islamic Banking*, Financial-Stability-in-Countries-with-Islamic-Banking, available at: https://www.imf.org/en/Publications/Policy-Papers/Issues/2017/02/21/PP-Ensuring (accessed 18 August 2017).

Iqbal, Z. (1999), "Financial engineering in Islamic finance", *Thunderbird International Business Review*, Vol. 41 Nos 4/5, pp. 541-559.

IRENA (2016), "Roadmap for a renewable energy future", available at: www.irena.org/documentdownloads/publications/irena_remap_2016_edition_report.pdf (accessed 18 August 2017).

ISRA (2016), *Islamic Financial System Principles and Operations*, International Shari'ah Research Academy for Islamic Finance, Kuala Lumpur.

Lee, C.M.C., Shleifer, A. and Thaler, R. (1991), "Investor sentiment and the closed-end fund puzzle", *Journal of Finance*, Vol. 46 No. 1, pp. 75-109.

Mullineux, A.W. and Murinde, V. (2005), *Handbook of International Banking*, Edward Elgar Publishing, Cheltenham.

Narbel, P.A. (2013), "The likely impact of Basel III on a bank's appetite for renewable energy financing", Discussion Paper, Norwegian School of Economics (NHH) Dept. of Business and Management Science Discussion, Bergen, Norway.

Nesta, L., Vona, F. and Nicolli, F. (2014), "Environmental policies, competition and innovation in renewable energy", *Journal of Environmental Economics and Management*, Vol. 67 No. 3, pp. 396-411.

OECD (2016), "Fragmentation in clean energy investment and financing", in *OECD (Ed.), OECD Business and Finance Outlook 2016*, OECD Publishing, Paris, pp. 141-176.

Orr, R.J. (2007), "The rise of infra funds", Project Finance International – Global Infrastructure Report 2007, available at: https://gpc.stanford.edu/publications/rise-infra-funds (accessed 27 March 2018).

Sekhar, G.V.S. (2013), "Theorems and theories of financial innovation: models and mechanism perspective", *Financial and Quantitative Analysis*, Vol. 1 No. 2, pp. 26-29.

Siddiqi, M.N. (2006), "Islamic banking and finance in theory and practice: a survey of state of the art", *Islamic Economic Studies*, Vol. 13 No. 2, pp. 1-48.

The World Bank and Climate Investment Funds (2015), "Financing renewable energy: options for developing financing instruments using public funds", available at: http://siteresources.worldbank.org/EXTENERGY2/Resources/SREP_financing_instruments_sk_clean2_FINAL_FOR_PRINTING.pdf (accessed 18 August 2017).

Thomas, A., Cox, S. and Kraty, B. (Eds.) (2005), *Structuring Islamic Finance Transactions*, Euromoney Books, London.

United Nations Framework Convention on Climate Change (2018), "Paris agreement – status of ratification", available at: https://unfccc.int/process/the-paris-agreement/status-of-ratification (accessed 1 July 2018).

Usmani, M.T. (1998), *An Introduction to Islamic Finance*, Jamia Darul-Uloo, Karachi.

Visser, H. (2009), *Islamic Finance: Principles and Practice*, Edward Elgar Publishing, Cheltenham.

Warde, I. (2000), *Islamic Finance in the Global Economy*, Edinburgh University Press, Edinburgh.

Further reading

AMP Capital Investors (2015), "Quarterly infrastructure research report", (August ed.), available at: www.ampcapital.com/AMPCapitalGlobal/media/contents/Articles/Infrastructure%20research/2010-Aug-Infrastructure-Research-Post-recession-gearing-in-the-infrastructure-sector.pdf?ext=.pdf (accessed 27 March 2018).

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